

NE-23-31249 – Post-Irradiation Examination to Quantify Irradiation-Induced Bowing of SiGA[®] Silicon Carbide Composite Structures

General Atomics (GA), located in San Diego, CA, specializes in bringing new nuclear materials and designs to market. GA works to develop the latest solutions in the areas of the Nuclear Fuel Cycle, Electromagnetic Systems, Remotely Piloted Aircraft Systems, Airborne Sensors, Laser Technologies, or Biofuels.

Accurate material behavior models are required for the licensing and implementation of SiC based structures in nuclear reactors. This project will address first-of-a-kind (FOAK) experimental post-irradiation examination (PIE) of irradiation-induced bowing response in SiC-SiC structures.

GA will work with Oak Ridge National Laboratory (ORNL) to perform PIE on previously irradiated silicon carbide specimens. ORNL has decades of SiC-SiC irradiation and PIE experience and developed a custom profilometry rig that works with the specimen geometries to accurately quantify post-irradiation deformation. The PIE results of this project will help GA in commercialization and licensing of their SiGA[®] product.